

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
)
Kang C. YEH et al.) Group Art Unit: Not Assigned
)
Serial No.: Not Assigned) Examiner: Not Assigned
)
Filed: December 18, 2001)
)
For: METHOD OF MAKING A NON)
COMPACTED PAPER WEB)
CONTAINING REFINED LONG)
FIBER USING A CHARGE)
CONTROLLED HEADBOX AND A)
SINGLE PLY TOWEL MADE BY)
THE PROCESS)

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

PRELIMINARY AMENDMENT

Prior to the examination of the above application, please amend this application
as follows:

IN THE CLAIMS:

Please cancel claims 1-15, amend claim 16, and add claims 24-30, as follows:

16. A fibrous web comprising:

a major portion of refined long fiber having an average weight-weighted
fiber length of from at least about 2 mm to about 3.5 mm;

a minor portion of a fiber selected from the group consisting of hardwood fibers, recycle fibers, secondary fibers, nonwoody fibers, and eucalyptus fibers, high yield fibers, thermally curled fibers, thermally cross-linked bulking fibers, and mixtures thereof;

a cationic wet strength agent selected from the group consisting of polyamide-epihalohydrin resins, thermosetting polyacrylamide resins, urea-formaldehyde resins, melamine formaldehyde resins, and mixtures thereof in an amount of from about 15 to about 30 lbs/ton;

an anionic strength agent selected from carboxymethyl celluloses, carboxymethyl guar gums, anionic starches, anionic guar gums, anionic polyacrylamides, and mixtures thereof;

wherein the amount of said cationic wet strength agent and said anionic strength agent is controlled so that the net charge of the web when formed from an aqueous stream is maintained in the range of from less than about zero to about $-115 \text{ meq} \times 10^{-6}$ per 10 ml;

said web having a machine direction stretch of at least about 8%, a cross-direction wet strength of at least about 29 g/3 in/lb of basis weight, and a tensile modulus of stiffness less than about 150 g/in-%.

Please add the following new claims:

24. An aqueous web produced by the method comprising:

supplying to a headbox an aqueous stream comprising a major proportion of refined long fiber having an average weight-weighted fiber length of from at least about 2 mm to about 3.5 mm, and a minor portion of a second fiber selected from the

supplying to said aqueous stream a cationic wet strength agent selected from the group consisting of polyamide-epihalohydrin resins, thermosetting polyacrylamide resins, urea-formaldehyde resins, melamine formaldehyde resins, and mixtures thereof in an amount of from about 15 to about 30 lbs/ton of total fiber in the furnish;

measuring the total anionic charge carried by said aqueous stream;

depositing said aqueous stream on a first moving foraminous support to

non-compactively dewatering the web deposited on the first moving support to a consistency in the range of from about 10% to about 30%;

drying the web to a consistency of at most about 98%:

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25. The aqueous web of claim 24, wherein the speed of said second moving foraminous support is at least about 2% less than the speed of the first moving foraminous support, thereby imparting a fabric crepe to said web of at least about 2%.

26. The aqueous web of claim 24, wherein said removing step comprises:
adhering said web to an internally heated drying cylinder.

27. The aqueous web of claim 26, wherein the method further comprises:
creping said web from said drying cylinder;
wherein said creping imparts a reel crepe to said web of at least about 2%.

28. The aqueous web of claim 24, wherein the method further comprises:
creping said web from said drying cylinder; and
embossing said web to a sufficient degree to reduce its tensile modulus of stiffness by 10%.

29. The aqueous web of claim 24, wherein the method further comprises:
embossing said web to a sufficient degree to reduce its tensile modulus of stiffness by at least about 10%.

30. A single ply towel produced from the aqueous web of claim 28, wherein the basis weight is 15 to 35 lb/rm; the geometric mean wet tensile strength is 500 to 2200 g/3 in; the absorbency is 125 to 400 g/m²; and the geometric mean tensile modulus of stiffness is 50 to 150 g/in-%.

REMARKS

Claims 16-30 are pending in this application. Claims 1-15 have been canceled without prejudice or disclaimer, claim 16 has been amended, and new claims 24-30

have been added. Support for these new claims and amendments can be found in the specification and claims as originally filed. Accordingly, no new matter has been added by these amendments.

Applicants respectfully request consideration of this application and timely allowance of pending claims 16-30.

If there is any fee due in connection with the filing of this Preliminary Amendment, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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GARRETT & DUNNER, L.L.P.

Dated: December 18, 2001

By: 

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APPENDIX TO AMENDMENT OF DECEMBER 20, 2001
VERSION WITH MARKINGS TO SHOW CHANGES MADE

AMENDMENTS TO THE CLAIMS

16. A fibrous web comprising:

a major portion of refined long fiber having an average weight-weighted fiber length of from at least about 2 mm to about 3.5 mm;

a minor portion of a fiber selected from the group consisting of hardwood fibers, recycle fibers, secondary fibers, nonwoody fibers, and eucalyptus fibers, high yield fibers, thermally curled fibers, thermally cross-linked bulking fibers, and mixtures thereof;

a cationic wet strength agent selected from the group consisting of polyamide-epihalohydrin resins, thermosetting polyacrylamide resins, urea-formaldehyde resins, melamine formaldehyde resins, and mixtures thereof in an amount of from about 15 to about 30 lbs/ton;

an anionic strength agent selected from carboxymethyl celluloses, carboxymethyl guar gums, anionic starches, anionic guar gums, anionic polyacrylamides, and mixtures thereof;

wherein the amount of said cationic wet strength agent and said anionic strength agent is controlled so that the net charge of the web when formed from an aqueous stream is maintained in the range of from less than about zero to about -115 meq x 10⁻⁶ per 10 ml;

said web having a machine direction stretch of at least about 8%, a cross-direction wet strength of at least about 29 g/3 in/lb of basis weight, and a tensile modulus of stiffness less than about 150 g/in-%.

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